Filing Date: September 5, 2003

Title: METHOD AND APPARATUS FOR IMPROVED COATING OF A SEMICONDUCTOR WAFER

REMARKS

This paper responds to the Office Action mailed on November 28, 2005.

Claim 17 is amended, no claims are canceled, and claims 31-41 are added; as a result, claims 17 and 31-41 are now pending in this application.

Claims 17 is amended to remove the recitations of "at least partially" from the preamble and "moving said nozzle in no more than one direction along said diameter." As the preamble does not recite limitations, the amendment to the preamble does not narrow the scope of the claim. The recitation of "moving said nozzle in no more than one direction along said diameter" is deleted from the claim to clarify. It is further asserted that these amendments broaden the claim.

Applicant amends claim 17 to include "in a single direction from the first point to a second point of said circumference" in the feature of spraying said material from said nozzle while moving said nozzle. Support for this amendment is found in the specification generally. One example of support is paragraph 24 of the specification. No new matter is proposed.

In the Abstract

The abstract was objected to because it does not reflect the claimed invention. Applicant herein amends the abstract. Withdrawal of the objection is requested.

In the Specification

The specification was objected to for not updating the priority data. The specification has been amended to update the priority data to include the issued Patent No. 6,666,917 of parent application No. 10/155,450. Withdrawal of the rejection is respectfully requested.

§112 Rejection of the Claims

Claim 17 was rejected under 35 U.S.C. § 112, first paragraph, as lacking adequate description or enablement. Claim 17 was rejected under 35 U.S.C. § 112, second paragraph, for indefiniteness. Applicant respectfully traverses each rejection an asserts that claim 17 complies

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with the written description requirement and is definite. Reconsideration and withdrawal of these rejections are requested.

The Office Action specifically objects to the feature "defining said first point to be independent of a rotation of said surface" as being new matter and being indefinite. Applicant respectfully traverses. This feature defines the first point relative to the surface circumference of the wafer. However, the wafer rotates. The nozzle moves in a single direction. See for example, Figure 3. Accordingly, if the first point was defined on the circumference, then the nozzle must rotate with the wafer to stay at the first point. Accordingly, the specification fully supports this definition of the first point as recited in claim 17. Moreover, this feature is definite to correctly define the linearly moving nozzle with respect to a rotating wafer.

The Office Action specifically objects to the feature "moving said nozzle in no more than one direction along said diameter" as being new matter. Applicant removes this recitation from the claim to move prosecution forward. However, applicant does not admit that this feature is new matter.

Reservation of the Right to Swear Behind References

Applicant maintains its right to swear behind any documents which are cited in a rejection under 35 U.S.C. §§102(a), 102(e), 103/102(a), and 103/102(e). Statements distinguishing the claimed subject matter over the cited documents are not to be interpreted as admissions that the documents are prior art.

§102 Rejection of the Claims

Claim 17 was rejected under 35 U.S.C. § 102(e) for anticipation by Tomoeda et al. (U.S. 5,626,913). Applicant respectfully traverses.

Claim 17 recites, in part, "spraying said material from said nozzle while moving said nozzle in a single direction from the first point to a second point of said circumference; . . . stopping motion of said nozzle when said nozzle is over said opposite edge, . . . stopping motion of said nozzle and stopping spraying over a the second point along said circumference."

Applicant can not find these features in Tomoeda. Tomoeda at the cited portion recites moving its nozzle 120 from a point (1) inward of the edge to the edge in a first direction [Figures 18A,

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18B], then reverses to a second direction [Figure 18C] to the other edge, and then moves in a third direction to a waiting position (3). Figure 18D shows a further position of the nozzle off the wafer with no explanation of the travel direction. Accordingly, applicant can not find all of the features as recited in claim 17. Reconsideration and withdrawal of the rejection of claim 17 is requested.

§103 Rejection of the Claims

Claim 17 was rejected under 35 U.S.C. § 103(a) as being unpatentable over Samuels (U.S. 4,457,259). Applicant respectfully traverses.

The Examiner has the burden under 35 U.S.C. § 103 to establish a prima facie case of obviousness. In re Fine, 837 F.2d 1071, 1074, 5 U.S.P.Q.2d (BNA) 1596, 1598 (Fed. Cir. 1988). In combining prior art references to construct a prima facie case, the Examiner must show some objective teaching in the prior art or some knowledge generally available to one of ordinary skill in the art that would lead an individual to combine the relevant teaching of the references. Id. The M.P.E.P. contains explicit direction to the Examiner that agrees with the In re Fine court:

In order for the Examiner to establish a *prima facie* case of obviousness, three base criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, and not based on applicant's disclosure. *M.P.E.P.* § 2142 (citing *In re Vaeck*, 947 F.2d 488, 20 U.S.P.Q.2d (BNA) 1438 (Fed. Cir. 1991)).

The fact that the references can be combined or modified does not render the resultant combination obvious unless the prior art also suggests the desirability of the combination. In re Mills, 16 USPQ2d 1430 (Fed. Cir. 1990); M.P.E.P. § 2143.01. That is, unless all three of the conditions described in M.P.E.P. § 2142 are met, a prima facte case of obviousness is not established, and rejection under 35 U.S.C.§103 is improper.

Claim 17 recites, in part, "positioning said nozzle generally over said edge," "positioning said nozzle over a first point along a circumference of said surface," "spraying said material from said nozzle while moving said nozzle in a single direction from the first point to a second point

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of said circumference," and "stopping motion of said nozzle when said nozzle is over said opposite edge." Applicant can not find any of these features in Samuels. As Samuels does not teach of even suggest all of the features of claim 17, it is allowable over Samuels.

Samuels teaches away from the recitation in claim 17. A reference may be said to teach away when a person of ordinary skill, upon reading the reference, would be discouraged from following the path set out in the reference, or would be led in a direction divergent from the path that was taken by the applicant. The degree of teaching away will of course depend on the particular facts; in general, a reference will teach away if it suggests that the line of development flowing from the reference's disclosure is unlikely to be productive of the result sought by the applicant. Samuels states, at col. 3, lines 2-5, that the "nozzle is reciprocated over the surface at about 150 stroked per minute (2 strokes per revolution of cam 40) at a rate of two strokes per 0.8 second, thereby spraying each wafer 16 approximately 135 times per spray cycle." Samuels further states, at col. 3, lines 47-49 that "... thereby start again the reciprocating action of the arm 30 carrying the nozzle 21." Samuels further states, at col. 4, lines 11-12 that "Thus, the nozzle 21 will be moved back and forth over the wafer ..." Accordingly, Samuels teaches away from the present invention as defined by claim 17. Reconsideration and allowance are requested.

The Office Action does not provide a motivation to alter the teachings of Samuels to arrive at the features recited in claim 17. The Office Action states that

it would have been obvious to one having ordinary skill in the art to have only moved the nozzle across the substrate one time while dispensing a larger amount of coating material, instead of moving the nozzle multiple times across the substrate while dispensing a lesser amount of coating material, with the expectation of similar and equivalent results, in the absence of a showing of criticality.

Applicant respectfully submits that there is no clear indication of a motivation to alter the express and repeated teachings of Samuels that the nozzle reciprocate across the substrate. Reconsideration and allowance are requested.

Claim 17 was rejected as obvious over a single document, Samuels. Applicant respectfully traverses the single reference rejection under 35 U.S.C. § 103 since not all of the recited elements of the claims are found Samuels. Since all the elements of the claim are not found in the reference, Applicant assumes that the Examiner is taking official

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notice of the missing elements. Applicant respectfully objects to the taking of official notice with a single reference obviousness rejection and, pursuant to M.P.E.P. § 2144.03, Applicant respectfully traverses the assertion of Official Notice and requests that the Examiner cite references in support of this position.

CONCLUSION

Applicant respectfully submits that the claims are in condition for allowance, and notification to that effect is earnestly requested. The Examiner is invited to telephone Applicant's attorney at (612) 349-9587 to facilitate prosecution of this application.

If necessary, please charge any additional fees or credit overpayment to Deposit Account No. 19-0743.

Respectfully submitted,

ROBERT WILLIAM COURTENAY

By his Representatives,

SCHWEGMAN, LUNDBERG, WOESSNER & KLUTH, P.A. P.O. Box 2938

Minneapolis, MN 55402

Reg. No. 40,957

(612) 349-9587

VATE GALWOR

Name

Date of Deposit: February 28, 2006
CERTIFICATE UNDER 37 CFR 1.8: This paper or fee is being filed on the date indicated above, using the USPTO's electronic filing system

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